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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.     | CONFIRMATION NO. |
|---|-------------|----------------------|-------------------------|------------------|
| 10/709,284  | 04/27/2004  | Takeshi Abe          | 81044232 / FMC 1636 PUS | 3283             |
| 28395   | 7590        | 12/13/2005           | EXAMINER                |                  |
| BROOKS KUSHMAN P.C./FGTL<br>1000 TOWN CENTER<br>22ND FLOOR<br>SOUTHFIELD, MI 48075-1238 |             |                      | BINDA, GREGORY JOHN     |                  |
|   |             |                      | ART UNIT                | PAPER NUMBER     |
|   |             |                      | 3679                    |                  |

DATE MAILED: 12/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/709,284

Applicant(s)

ABE ET AL.

Examiner

Greg Binda

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 April 2004 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/27/04</u> . | 6) <input type="checkbox"/> Other: ____.  |

*Drawings*

1. The drawings are objected to because two separate views are labeled as Fig. 4. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

*Specification*

2. The disclosure is objected to as failing to comply with 37 CFR 1.52(b)(2)(ii) for failing to be presented in font size 12.
3. The disclosure is objected to because in paragraphs 0031 & 0032 the term "2 pound" should be changed to "two pound".

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4. A substitute specification excluding the claims is required pursuant to 37 CFR 1.125 because the original specification lacks pagination.

A substitute specification must not contain new matter. The substitute specification must be submitted with markings showing all the changes relative to the immediate prior version of the specification of record. The text of any added subject matter must be shown by underlining the added text. The text of any deleted matter must be shown by strike-through except that double brackets placed before and after the deleted characters may be used to show deletion of five or fewer consecutive characters. The text of any deleted subject matter must be shown by being placed within double brackets if strike-through cannot be easily perceived. **An accompanying clean version (without markings) and a statement that the substitute specification contains no new matter must also be supplied.** Numbering the paragraphs of the specification of record is not considered a change that must be shown.

5. The specification is objected to because the detailed description fails to provide proper antecedent basis for the following claimed subject matter:

- a. Claims 3, 4, 11-16 & 20: all limitations therein
- b. Claim 5: “the bending vibration antinode”
- c. Claim 8, line 4 and claim 17, line 4: “a central region”
- d. Claim 9: “a bending antinode”

*Claim Objections*

6. The claims are objected to as failing to comply with 37 CFR 1.75(i) because elements of the claims are not separated by line indentation.

*Claim Rejections - 35 USC § 112*

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 1-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

- a. Claim 1, lines 2-4 recites the limitation, “the rotating shaft . . . exhibits a bending mode and exhibits a breathing mode which are closely coupled”. The specification fails to teach how to make such a shaft.
- b. Claim 8, lines 6-9 and claim 17, lines 6-9 recite the limitation, “an inertia ring . . . fixed at a specified point on the driveshaft that separates the bending mode . . . from the breathing mode”. The specification fails to teach how such a point is determined.
- c. Claim 13 recites the limitation, “the weight of the inertia ring is determined by finite element analysis” The specification fails to teach how such analysis is accomplished.

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d. Claim 13 recites the limitation, “the weight of the inertia ring is determined by testing” The specification fails to teach how such testing is accomplished.

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. Claims 1-7 are directed simply to a “system”. The term “system” by itself is too broad to identify an invention without ambiguity.

b. The term "closely" in claim 1, line 4 is a relative term which renders the claim indefinite. The term "closely" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

c. The term "near" in claim 5 is a relative term which renders the claim indefinite. The term "near" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

d. Claim 3 recites that the breathing mode is “the expansion and contraction of the shaft”. Thus begging the question – what else could it be, particularly in the other claims where it is not expressly recited as the expansion and contraction of the shaft.

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- e. Claim 4 recites that the bending mode is “the oscillation of the shaft”. Thus begging the question – what else could it be, particularly in the other claims where is not expressly recited as the oscillation the shaft.
- f. Claim 8, line 9 recites that the breathing mode is created by vibration of the driveshaft, but claim 17, line 9 recites that the breathing mode is created by the rotation of the driveshaft. Are the claims referring to two different breathing modes or the same breathing mode? If the latter, then why are two different modes given the same name?
- g. Claims 18-20 recite the limitation "A drivetrain connection according to claim 17". There is insufficient antecedent basis for this limitation in the claims.

*Claim Rejections - 35 USC § 102*

11. Claims 1-5, 8, 9, 12, 13 & 16-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Larsen, US 3,037,573. Figs. 1-5 show a drivetrain for a vehicle (see col. 2, line 54) having an engine E, transmission (see col. 2, line 57), differential (see col. 2, line 58) and driveshaft connection wherein the driveshaft connection comprises: a shaft 1 having first and second ends and a central region; and a rotationally symmetric inertia ring 13, 15, 17 having an inner opening fixed at a bending vibration antinode 16 near the end of the shaft (see also col. 3, line 74 through col. 4, line 4).

12. Claims 1-5, 8, 9, 12, 13 & 16-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Linn, US 1,776,125. Fig. 3 shows a drivetrain connection comprises: a shaft 3 having first



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and second ends and a central region; and a rotationally symmetric inertia ring 6 having an inner opening fixed at a bending vibration antinode near the end of the shaft.

*Claim Rejections - 35 USC § 103*

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 14 & 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Linn. Linn shows all the limitations of the claimed invention, but does expressly disclose making the inertia ring from steel or aluminum. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the inertia ring from steel or aluminum, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

15. Claims 14 & 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Larsen for the same reasons noted immediately above.

16. Claims 6, 7, 10, 11, 19 & 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Linn in view of Hornig et al, US 4,196,786 (Hornig). Linn shows a driveshaft comprising



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an inertia ring 6, but does expressly disclose the ring being made of two pressed clamped halves having an inner diameter that is less than the outer diameter of the shaft. Hornig shows a driveshaft comprising an inertia ring made of two pressed clamped halves 15 having an inner diameter (at the portions 18) that is less than the outer diameter of the shaft. In col. 2, lines 17-33, Hornig teaches making the inertia ring in this way in order to provide a simple, inexpensive and readily installed means for damping vibrations. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the driveshaft of Linn by making the inertia ring from two pressed clamped halves having an inner diameter that is less than the outer diameter of the shaft in provide a simple, inexpensive and readily installed means for damping vibrations as taught by Hornig.

### *Conclusion*

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Zyogahara discloses in col. 3, line 11 that steel is a suitable material for an inertia ring. Langsetmo discloses in col. 2, lines 69+ that aluminum is a suitable material for an inertia ring. Pauwels discloses in col. 3, line 42 a breathing mode. Armitage discloses in col. 4, line 38 bending and breathing modes.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Greg Binda whose telephone number is (571) 272-7077. The examiner can normally be reached on M-F 9:30 am to 7:00 pm with alternate Fridays off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel P. Stodola can be reached on (571) 272-7087. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Greg Binda  
Primary Examiner  
Art Unit 3679